

VIDEO DATA DE-INTERLACING USING PERCEPTUALLY-TUNED INTERPOLATION SCHEME

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ABSTRACT

5 A de-interlacing architecture is taught. The de-interlacing architecture adopts a
perceptual model to measure membership probabilities for a collection of image samples of
an interlaced video source with respect to extracted static, motion, and texture image
components of the same collection. The probabilities are used to prioritize contributions
from the three image components and produce a progressive video sequence which is a
10 summation of the portions of the aforementioned components. The perceptual model uses a
dual-stage motion-based image difficulty measuring scheme to equalize contributions from
the three image components in a manner that video artifacts in the output signal are least
perceptive. A parameter mapping technique composed of several logic units, a decision
function, a weight assignment block, and a look-up table, will be presented to derive the final
15 component weights. The mapping technique contains a multitude of thresholds and decisions
which aid in interpolating the missing lines of the progressive frame.